

REMARKS/ARGUMENTS

Favorable reconsideration of this application as presently amended and in light of the following discussion is respectfully requested.

Claims 1-18 are presently active in this case, Claim 1 amended and Claims 15-18 added by way of the present amendment.

In the outstanding Office Action, Claims 1-2 and 4 were rejected under 35 U.S.C. 102(b) as being anticipated by JP2001-237212 to Tsukasa et al.; Claims 3 and 5 were rejected under 35 U.S.C. 103(a) as being unpatentable over Tsukasa et al. as supported by U.S. 4,705,595 to Okudaira et al.; and Claims 8-14 were rejected under 35 U.S.C. 103(a) as being unpatentable over Tsukasa et al. in view of U.S. 5,270,259 to Ito et al. and U.S. 6,635,185 to Demmin et al.

Turning now to the merits, in order to expedite issuance of a patent in this case, Applicants have amended Claim 1 to clarify the patentable features of the present invention over the cited references. Specifically, amended Claim 1 as amended recites that a method of treating the surface of a material for an electronic device includes irradiating the surface of the material with at least a part of plasma components, while supplying a liquid to the surface of the material, thereby flattening the surface of the material. Also recited is that a DC bias, an AC bias, or both a DC bias and an AC bias are applied to the material. Support for this bias feature is provided at paragraph [0055] of Applicants' specification as originally filed and therefore does not present an issue of new matter.

The cited reference to Tsukasa et al. discloses that a substrate placed on a rotary device is treated at atmospheric pressure by producing ozone etc. by irradiating the substrate with an *electron beam* while the substrate is rotated in a state where a liquid chemical is

supplied to the substrate. The Office Action apparently considers positive/negative ions formed by the electron beam to be equivalent to the claimed plasma supplied to flatten the surface according to the invention. However, such positive/negative ions formed by an electron beam cannot maintain an ionized state long enough to use for flattening a substrate. By contrast, with the claimed invention, radical or positive/negative ions formed by *plasma* are effectively used for flattening a substrate by DC and/or AC bias.

To emphasize this distinction, Applicants have amended Claim 1 to recite that a DC bias, an AC bias, or both a DC bias and an AC bias is applied to the material. By applying a bias to the material 1 as described above, the surface of the material 1 can be easily flattened by utilizing the energy of positive or negative ions stemming from the plasma.¹ Tsukasa et al. cannot provide this feature. That is, Tsukasa et al. does not teach or suggest a method of treating the surface of a material for an electronic device comprising flattening the surface of the material by irradiating the surface of the material with at least part of plasma components while feeding a liquid to the surface of the material, wherein a DC bias, an AC bias, or both a DC bias and an AC bias is applied to the material. Thus, Claim 1 patentably defines over Tsukasa et al.

The secondary references are cited only for features claimed in dependent claims, the rejection of which relies on the above-noted teachings of the primary reference. Thus, the secondary references do not correct the deficiencies discussed above, and Claim 1 patentably defines over all cited references. As Claims 2-5 and 8-18 depend from Claim 1, these claims also patentably define over the cited references. Nevertheless, Applicants have added new Claims 15-18 to further clarify distinctions over the cited references. New Claim 15 recites a non-equilibrium plasma and is based on the description at paragraph [0038] of Applicants'


¹ Applicants' specification at paragraph [0055], "Utilizing the Bias."

published application U.S. 2007/0034601. New Claims 16 and 17 relate to the electrode of the apparatus and are based on the description in Fig. 6 of Applicants' specification. New Claim 18 recites an electron temperature of the plasma and the apparatus and is based on the description at paragraph [0049]. The cited references do not disclose any of these features. Thus, Claims 15-18 further distinguish over the cited references.

Consequently, in view of the present amendment, no further issues are believed to be outstanding in the present application and the present application is believed to be in condition for formal allowance. An early and favorable action is therefore respectfully requested.

Respectfully submitted,

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